

DEX-0499

103

PATENT

We Claim:

1. An antibody produced by a hybridoma of American Type Culture Collection accession number PTA-5878, PTA-5879, PTA-6146, PTA-6147 and PTA-6629 or which  
5 competes for binding to a same epitope as the epitope bound by the antibody produced by a hybridoma of American Type Culture Collection accession number PTA-5878, PTA-5879, PTA-6146, PTA-6147 and PTA-6629.
2. The antibody of claim 1 which is a monoclonal antibody.
- 10 3. The antibody of claim 1 which is an antibody fragment.
4. The antibody of claim 1 which is a chimeric or a humanized antibody.
- 15 5. The antibody of claim 1 which is produced by immunization with Lng105 protein.
6. The antibody of claim 1 which binds to native Lng105 protein.
7. The antibody of claim 1, wherein the antibody competes for binding to the same  
20 epitope as the epitope bound by the monoclonal antibody produced by a hybridoma selected from the group consisting of American Type Culture Collection accession number PTA-5878, PTA-5879, PTA-6146, PTA-6147 and PTA-6629.
8. The antibody of claim 1 further comprising a growth inhibitory agent conjugated  
25 thereto.
9. The antibody of claim 1 further comprising an imaging agent conjugated thereto.
10. The antibody of claim 1 further comprising a cytotoxic agent conjugated thereto.  
30
11. The antibody of claim 10 wherein the cytotoxic agent is selected from the group consisting of toxins, antibiotics, radioactive isotopes and nucleolytic enzymes.

DEX-0499

104

PATENT

12. The antibody of claim 11 wherein the cytotoxic agent is a toxin.

13. The antibody of claim 12, wherein the toxin is selected from the group consisting of a ricin, saponin, maytansinoid and calicheamicin.

5

14. The antibody of claim 13, wherein the toxin is a maytansinoid.

15. The antibody of claim 1 that selectively binds Lng105 in a bodily fluid.

10 16. The antibody of claim 1 that selectively binds a Lng105-expressing cell.

17. The antibody of claim 1 that inhibits the growth of a Lng105-expressing cell.

18. The antibody of claim 15 which is a humanized or human antibody.

15

19. The antibody of claim 18 which is produced in bacterial or mammalian cells.

20. The antibody of claim 16, which is a humanized form of an anti-Lng105 antibody produced by a hybridoma selected from the group consisting of ATCC accession number

20 PTA-5878, PTA-5879, PTA-6146, PTA-6147 and PTA-6629.

21. The antibody of claim 16, wherein the Lng105-expressing cell is a cancer cell.

22. The antibody of claim 21, wherein the cancer cell is from a cancer comprising lung  
25 or breast cancer.

23. An antibody produced by a hybridoma of American Type Culture Collection accession number PTA-5878, PTA-5879, PTA-6146, PTA-6147 and PTA-6629.

30 24. A cell that produces the antibody of claim 1.

DEX-0499

105

PATENT

25. The cell of claim 24, wherein the cell comprises a hybridoma cell deposited under American Type Culture Collection accession number PTA-5878, PTA-5879, PTA-6146, PTA-6147 and PTA-6629.

5 26. A method of producing the antibody of claim 1 comprising culturing an appropriate cell and recovering the antibody from the cell culture.

27. A composition comprising the antibody of any of claims 1-23 , and a carrier.

10 28. The composition of claim 27, wherein the antibody is conjugated to an imaging agent.

29. The composition of claim 27, wherein the antibody is conjugated to a cytotoxic agent.

15

30. The composition of claim 28; wherein the cytotoxic agent is a ricin, saponin, maytansinoid and calicheamicin.

31. The composition of claim 30 wherein the cytotoxic agent is a maytansinoid.

20

32. The composition of claim 27, wherein the antibody is a human or humanized antibody and the carrier is a pharmaceutical carrier.

33. The composition of claim 32, wherein the humanized antibody is a humanized  
25 form of an anti-Lng105 antibody produced by a hybridoma selected from the group consisting of ATCC accession number PTA-5878, PTA-5879, PTA-6146, PTA-6147 and PTA-6629.

34. A method of killing an Lng105-expressing cancer cell, comprising contacting the  
30 cancer cell with the antibody of claim 1, thereby killing the cancer cell.

35. The method of claim 34, wherein the cancer cell comprises a lung or breast cancer cell.

DEX-0499

106

PATENT

36. The method of claim 35, wherein the cancer cell is from metastatic lung or breast cancer.

5 37. The method of claim 34, wherein the antibody is an antibody fragment.

38. The method of claim 34, wherein the antibody is a humanized antibody.

39. The method of claim 34, wherein the antibody is conjugated to a cytotoxic agent.

10

40. The method of claim 39, wherein the cytotoxic agent is a toxin selected from the group consisting of maytansinoid, ricin, saporin and calicheamicin.

41. The method of claim 34, wherein the antibody is a humanized form of the antibody  
15 produced by a hybridoma selected from the group consisting of ATCC accession number PTA-5878, PTA-5879, PTA-6146, PTA-6147 and PTA-6629.

42. The method of claim 39, wherein the cytotoxic agent is a radioactive isotope.

20 43. A method of alleviating a Lng105-expressing cancer in a mammal, comprising administering a therapeutically effective amount of the antibody of claim 1 to the mammal.

44. The method of claim 43, wherein the cancer comprises lung or breast cancer.

25

45. The method of claim 43, wherein the antibody is a humanized antibody.

46. The method of claim 43, wherein the antibody is conjugated to a cytotoxic agent.

30 47. The method of claim 46, wherein the cytotoxic agent is a ricin, saponin, maytansinoid and calicheamicin.

DEX-0499

107

PATENT

48. The method of claim 43, wherein the antibody is administered in conjunction with at least one chemotherapeutic agent.

49. The method of claim 48 wherein the chemotherapeutic agent is paclitaxel or a derivative thereof.

50. An article of manufacture comprising a container and a composition contained therein, wherein the composition comprises an antibody of claim 1.

51. The article of manufacture of claim 50 further comprising a package insert indicating that the composition can be used to diagnose, image or treat lung or breast cancer.

52. A method for determining if cells in a sample express Lng105 comprising

(a.) contacting a sample of cells with the antibody of claim 1 under conditions suitable for specific binding of the antibody to Lng105 and

(b.) determining the level of binding of the antibody of claim 1 to cells in the sample, or the level of antibody internalization of the antibody of claim 1 by cells in said sample,

wherein antibody binding of the antibody of claim 1 to cells in the sample or internalization of the antibody of claim 1 by cells in the sample indicate cells in the sample express Lng105.

53. The method of claim 52 wherein said sample of cells are contacted with an antibody produced by a hybridoma selected from the group of consisting of American Type Culture Collection Accession No. PTA-5878, PTA-5879, PTA-6146, PTA-6147 and PTA-6629.

54. The method of claim 52 wherein said sample of cells are contacted with an antibody produced by a hybridoma selected from the group of consisting of American Type Culture Collection Accession No. PTA-6629.

DEX-0499

108

PATENT

55. The method of claim 52 wherein said sample of cells is from a subject who has a cancer, is suspected of having a cancer or who may have a predisposition for developing cancer.

5 56. The method of claim 52 wherein the cancer comprises a lung or breast cancer.

57. The method of claim 52 wherein said antibody is a labeled antibody.

10 58. A method for detecting Lng105 overexpression in a test cell sample, comprising:  
(a) combining a test cell sample with the antibody of claim 1 under conditions suitable for specific binding of the antibody of claim 1 to Lng105 expressed by cells in said test sample;  
(b) determining the level of binding of the antibody of claim 1 to the cells in the test sample; and  
15 (c) comparing the level of antibody of claim 1 bound to the cells in step (b) to the level of antibody binding of the antibody of claim 1 to cells in a control cell sample, wherein an increase in the binding of the antibody of claim 1 in the test cell sample as compared to the control is indicative of Lng105 overexpression by cells in the test cell sample.

20

59. The method of claim 58 wherein the test cell sample is a cancer cell sample.

60. The method of claim 59 wherein the cancer cell sample comprises breast or lung cancer.

25

61. The method of claim 59 wherein the control is a sample of adjacent normal tissue.

62. A method for detecting Lng105 overexpression in a subject in need thereof comprising:

30 (a) combining a bodily fluid sample of a subject with the antibody of claim 1 under conditions suitable for specific binding of the antibody of claim 1 to Lng105 in said serum sample;  
(b) determining the level of Lng105 in the bodily fluid sample; and

DEX-0499

109

PATENT

(c) comparing the level of Lng105 determined in step (b) to the level of Lng105 in a control;

wherein an increase in the level of Lng105 in the bodily fluid sample from the subject as compared to the control is indicative of Lng105 overexpression in the subject.

5

63. The method of claim 62 wherein the bodily fluid is whole blood, serum, plasma or urine.

64. The method of claim 62 wherein the subject has cancer.

10

65. The method of claim 64 wherein the subject has lung or breast cancer.

66. The method of claim 62 wherein the control is a bodily fluid sample from a subject without a cancer overexpressing Lng105.

15

67. The method of claim 62 wherein the method utilizes a plurality of anti-Lng105 antibodies.

68. The method of claim 67 wherein the antibodies are produced by a hybridoma selected from the group comprising PTA-5878, PTA-5879, PTA-6146 and PTA-6147.

20

69. The method of claim 67 wherein the antibodies are produced by a hybridoma consisting of PTA-5878 and PTA-5879.

25

70. The method of claim 67 wherein the antibodies are produced by a hybridoma consisting of PTA-6146 and PTA-6147.

71. A screening method for antibodies that bind to an epitope which is bound by an antibody of claim 1 comprising,:

30

(a) combining a Lng105-containing sample with a test antibody and an antibody of claim 1 to form a mixture ;



DEX-0499

110

PATENT

(b) determining the level of antibody of claim 1 bound to Lng105 in the mixture;  
and

(c) comparing the level of antibody of claim 1 bound in the mixture of step (a) to a control mixture;

5 wherein the level of antibody binding of the antibody of claim 1 to Lng105 in the mixture as compared to the control is indicative of the test antibody's binding to a same epitope that is bound by the antibody of claim 1.

10 72. The screening method of claim 71 wherein the level of antibody of claim 1 bound to Lng105 is determined by ELISA.

73. The screening method of claim 71 wherein the control is a mixture of Lng105, antibody of claim 1 and an antibody known to bind the same epitope bound by the antibody of claim 1.

15

74. The screening method of claim 71 wherein the antibody of claim 1 is labeled.

75. The screening method of claim 74 wherein the Lng105 is bound to a solid support.

20 76. The screening method of claim 75 wherein the solid support is a sepharose bead.